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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,938	09/09/2003	James Robert Champion	FOM-139.01	1614
25181	7590	11/23/2005	EXAMINER	
FOLEY HOAG, LLP PATENT GROUP, WORLD TRADE CENTER WEST 155 SEAPORT BLVD BOSTON, MA 02110			BENSON, WALTER	
			ART UNIT	PAPER NUMBER
			2858	

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/657,938	CHAMPION ET AL.	
	Examiner	Art Unit	
	Walter Benson	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-17,21-23 and 25-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7,9-17,21 and 22 is/are allowed.
- 6) ☒ Claim(s) 23 and 25-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/01/05 has been entered.

2. Claims 1-7, 9-17, 19, 21-23, and 25-56 are now pending.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29

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USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 30, and 32-56 are provisionally rejected on the ground of nonstatutory double patenting over claims 20 and 28 of copending Application No. 10/658,583 and claims 1-2, 4-16, and 21-22 of copending Application No. 10/658,005. Although the conflicting claims are not identical, they are not patentably distinct from each other because except for employing different phraseology, an obvious variation of the recited subject matter is being sought. For example:

a. The limitations recited in current application claim 30, corresponds to the limitations of claims 21 and 28 of application number 10/658,583. However, because claims 21 and 28 of application 10/658,583 cover the scope of the present invention and more, it would have rendered claim 30 obvious.

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b. The limitations recited in current application claims 32-56, corresponds to the limitations of claims (1, and 21), 2, 4-9, 12-15, 21, 11, 22, (1, 10, 16, and 21), 17-20, 23, and 22 of application number 10/658,005.

This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 23, 25, 27, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Resnick (US Patent No. 5,910,188 and Resnick hereinafter) in view of Blaine (US Patent No. 6,023,970 and Blaine hereinafter).

3. As to claims 23 and 31, Resnick discloses a system substantially as claimed, comprising:
the first conductive element and second conductive element coaxially separated and so disposed with respect to each other that, when the first and second conductive elements extend through at least one dielectric mismatch boundary, a first electromagnetic signal will induce a second electromagnetic signal to propagate along the second conductive element (col. 2, lines 64-67 and col. 3, lines 1-8);

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at least partially circumscribing an area about the at least one first conductive element [28, Fig. 4) and the at least one second conductive element [26, Fig. 4] with a-third conductive element [36, Fig. 4] connected to a ground plane (col. 4, lines 38-45);

Resnick did not expressly disclose:

receiving from the at least one second conductive element, a second electromagnetic signal induced by the first electromagnetic signal driven along the at least one first conductive element, the second electromagnetic signal being couple to the at least one second conductive element in response to the at least one dielectric mismatch boundary.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Resnick, as evidenced by Blaine.

Blaine discloses a fluid level sensor for determining the level of fluid in a container having:

a transmitter [col. 8, lines 2-5] operable to drive the first electromagnetic signal along the at least one first conductive element without also driving the at least one second conductive element (col. 9, lines 58-60 and col. 11, lines 32-35);

a receiver [col. 12, lines 19-22] for receiving the second electromagnetic signal from the at least one second conductive element being coupled to the at least one second conductive element in response to the at least one dielectric mismatch boundary (col. 12, lines 10-16).

Given the teaching of Blaine, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Resnick by employing the well known or standard features of a sensor, such as disclosed by Blaine in order to improve the measuring sensitivity and accuracy of the sensor.

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Further to claim 23, Resnick in view of Blaine did not expressly disclose:

first and second conductive elements axially separated.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Resnick in view of Blaine, as evidenced by Dam.

Dam discloses a liquid sensing system having:

first and second conductive elements axially separated (10, 12, Fig. 2).

Given the teaching of Dam, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Resnick in view of Blaine by employing the well known or standard features of a sensor, such as disclosed by Dam in order to improve measuring the characteristics of a material.

4. As to claim 25, Resnick discloses a system further comprising:

a processing element executing instructions to evaluate the received electromagnetic signal relative to the driven electromagnetic signal to determine a characteristic of at least one substance associated with the dielectric mismatch boundary (col. 2, lines 24-37).

5. As to claim 27, Resnick discloses a system comprising:

where the at least one first and second conductive elements are flexible (col. 5, lines 6-10).

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6. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Resnick in view of Blaine as applied to claim 23, and further in view of Haynes (US Patent No. 6,801,157 and Haynes hereinafter).

Although the system disclosed by Resnick in view of Blaine, shows substantial features of the claimed

invention (discussed in paragraphs above), it fails to disclose:

where the attributes of the received electromagnetic signal relative to the driven electromagnetic signal includes a time delay and the characteristic of the at least one substance corresponds to a level of that substance [claim 26];

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Resnick in view of Blaine, as evidenced by Haynes.

Haynes discloses a system where the reflected pluses represent a characteristic of a material being measured having:

where the attributes of the received electromagnetic signal relative to the driven electromagnetic signal includes a time delay and the characteristic of the at least one substance corresponds to a level of that substance [claim 26] (col. 4, lines 31-35) to provide data to remote devices and the outside world;

Given the teaching of Haynes, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Resnick in view of Blaine by employing the well known or standard features of a sensor, such as disclosed by Haynes in order to improve measuring the condition or characteristics of a material and for the purposes discussed above.

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7. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Resnick in view of Blaine as applied to claim 23, and further in view of Macke, Sr. et al. (US Patent Number 6,137,282 and Macke hereinafter).

Although the system disclosed by Resnick in view of Blaine, shows substantial features of the claimed

invention (discussed in paragraphs above), it fails to disclose:

a coupler positioned at the dielectric mismatch boundary for coupling the received electromagnetic signal, size of the received electromagnetic signal being independent of dielectric properties associated with substances forming the dielectric mismatch boundary [claim 28];

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Resnick in view of Blaine, as evidenced by Macke.

Macke discloses a system where the reflected pulses represent a characteristic or level of a material being measured having:

a coupler positioned at the dielectric mismatch boundary for coupling the received electromagnetic signal, size of the received electromagnetic signal being independent of dielectric properties associated with substances forming the dielectric mismatch boundary [claim 28] col. 4, lines 65-67 and col. 5, lines 1-4) to couple a slight change in dielectric medium to the receiver 1 circuit;

Given the teaching of Macke, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Resnick in view of Blaine by employing the well known or standard features of a sensor, such as disclosed by

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Macke in order to improve measuring the distance or characteristics of a material and for the purposes discussed above.

8. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Resnick and Blaine in view of Macke as applied to claim 28 above, and further in view of Lutke (US Patent No. 6,229,476 B1 and Lutke hereinafter).

Although the combine teaching of Resnick, Blaine and Macke shows substantial features of the claimed invention (discussed in the paragraphs above), it fails to disclose:

a float for positioning the coupler relative to the at least one dielectric mismatch boundary [claim 29];

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Resnick in view of Blaine and Macke, as evidenced by Lutke.

In an analogous art, Lutke discloses a system for measuring liquid level having:

a float for positioning the coupler relative to the at least one dielectric mismatch boundary [claim 29] (col. 4, lines 16-26) to move along the level;

Given the teaching of Lutke, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Resnick and Blaine in view of Macke by employing the well known or standard features of a sensor, such as disclosed by Lutke in order to improve measuring the level or characteristics of a material and for the purposes discussed above.

Allowable Subject Matter

9. Claims 1-7, 9-17, 19, and 21-22 are allowed over the prior art of record.

Response to Arguments

10. Applicant's arguments with respect to claim 23 have been considered but are moot in view of the new ground(s) of rejection.

11. In the remarks applicant argued in substance that:

(1) Resnick does not teach or suggest circumscribing an area about the first and second axially separated conductive elements.

12. Examiner respectfully traverses applicant's remarks:

As to point (1), Resnick in view of Blaine and Dam discloses at least partially circumscribing an area about the at least one first conductive element [28, Fig. 4) and the at least one second conductive element [26, Fig. 4] with a-third conductive element [36, Fig. 4] connected to a ground plane (col. 4, lines 38-45) where first and second conductive elements axially separated (10, 12, Fig. 2).


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter Benson whose telephone number is (571) 272-2227. The examiner can normally be reached on Mon to Fri 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Walter Benson
Patent Examiner

November 18, 2005